

RCE-Preliminary Amendment dated August 27, 2004

REMARKS/ARGUMENTS

Claim 25 is amended in line 5 to place "a" before "fuel barrier." The amendment cures the informality objected to in paragraph 2 of the Final Rejection dated April 20, 2004.

Claim 29 is amended to depend from Claim 28 instead of Claim 27.

Claim 36 is amended to replace "HDPE" with "high density polyethylene" in line 4.

These amendments obviate the 112 rejections in the above-mentioned Final Rejection.

Claim 25 is amended to include the limitation "wherein the adhesive can support a load of 1334N." Support for this amendment is found on page 4, lines 23-25.

Claim 27 is amended to better define the adhesive by reciting the adhesive comprises "a polymerizable acrylic composition." Support for this amendment is found on page 5, lines 14-16.

Claims 37-45 are cancelled.

New Claims 46-58 are added.

Claim 46 defines the process as "consisting essentially of" five steps. Support for these five steps is found on page 1, lines 15-20. Claim 46 further requires that the adhesive can support a load of about 1334N and exhibits a fuel permeation rate of not more than about 46 g-mm/m<sup>2</sup>/day. Support for these features is found on page 4, lines 23-28.

Claim 52 is added which is original Claim 25 with the added limitation of "wherein the adhesive can support a load of 1334N."

New Claim 55 is added which claims a repaired fuel tank. Support for Claim 55 is found in Figures 1A and 1B and the description thereof on page 11 last 2 paragraphs.

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Claims 49 and 53 are added which depend from Claims 25 and 52, respectively, which add the limitation that the adhesive has a fuel permeation rate of not more than about 46 g-mm/m<sup>2</sup>/day.

Claims 47, 50, 54 and 57 are added which depend from Claims 46, 49, 50 and 56, respectively and add the limitation that the adhesive exhibits a fuel permeation rate of no more than 12 g-mm/m<sup>2</sup>/day. Support for this amendment is found on page 4, lines 26-28.

Claim 48 is added which depends from Claim 46 added which defines the adhesive as comprising a polymerizable acrylic composition and an organoborane amine complex. Support is found on page 5, lines 14-16.

Claims 51 and 58 depend from Claims 49 and 56 respectively, and add the limitation that no mechanical affixation means is used on present in the patching operation or patched part of the fuel tank. Support is found in the description of Figures 1A and 1B and the last 2 paragraphs of page 11. The passage indicates a mechanical affixation means may be used and Figures 1A and 1B show embodiments without the use of such means.

Claim 56 depends from Claim 55 and adds the limitation that the adhesive comprises an acrylic composition initiated by an organoborane amine complex.

Claim 59 is added which depends from Claim 57 and adds the limitation that the patch contains standoffs which are disposed between the fuel tank and the patch. Support for this amendment is found on page 11, last paragraph.

As all of the amendments are supported in the specification, the amendments are proper. Applicants request entry of the amendments.

#### Discussion of Obviousness

The cited references do not disclose patching a fuel tank or a patched fuel tank using an adhesive which can support a load of 1334N (newtons), as required by amended Claim 25 and Claims 46 and 55. Further, the references do not teach or suggest the use of an adhesive having fuel vapor permeation properties of not more

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than 46 g-mm/m<sup>2</sup>/day as required by Claims 46, 49 and 55 or of not more than 12 g-mm/m<sup>2</sup>/day as required by Claims 47, 50, 54 and 57. The references do not disclose the use of an organoborane amine complex initiated acrylic composition based adhesive as required by Claims 27, 48 and 56. Further, the references disclose patching a fuel tank or patched fuel tank without a mechanical affixation means, as required by Claims 46, 51 and 58. The references do not disclose the use of a patch which has standoffs as required by Claim 59. As the cited references do not disclose the recited features, the claims are unobvious and the claims must be allowed.

Leonard discloses a method for patching a fuel tank which involves the use of a screw or bolt attached to a patch with an insertable toggle nut to hold the patch in place. A polymer composition is used to seal the patch to the fuel tank. The mechanical attachment means is the method disclosed in Leonard of holding the patch in place. Leonard does not teach or suggest the use of an adhesive having a capability of supporting a load of 1334N. Such an adhesive provides sufficient strength to hold the patch in place without mechanical affixation means. In fact Leonard teaches away from this by using a mechanical affixation means to hold the patch in place. The adhesive used in Leonard is used to seal the gaps between the patch and the fuel tank. Nor does Leonard suggest the use of an adhesive which has the fuel permeation properties recited in the claims.

Wood discloses plastic materials modified to reduce fuel permeation. Wood does not provide any teaching which teaches or suggests any of the above-mentioned deficiencies. Therefore, the combination of these two references does not present a case of *prima facie* obviousness.

Leonard discloses the use of an epoxy adhesive as the sealant for the patch. Leonard does not disclose the nature of any other adhesive which can be used. Leonard does not teach or suggest the use of an organoborane amine complex initiated acrylic adhesive to bond the patch in place. The Final Rejection cites Skoultschi, Zharov and Pocius references as secondary references and argues it would be obvious to substitute the organoborane amine complex initiated acrylic adhesives disclosed therein for the epoxy adhesives disclosed in Leonard. The Final Rejection does not provide a sufficient teaching in any reference which suggests this combination. No

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reference is cited which suggests that the epoxy sealants of Leonard are equivalent to organoborane amine complex initiated acrylic adhesive compositions. The facts show they are not equivalent because the sealants of Leonard require mechanical affixation means. There are many different adhesive families available; the Final Rejection provides no reason to select the acrylic adhesive as disclosed in the cited references for substitution for the epoxy sealants of Leonard. Absent reference to Applicants' specification, the Examiner has no reason to select the adhesives disclosed in the cited references for use in patching fuel tanks. Because no proper motivation is established to suggest the combination, this combination is improper and does not establish a case of *prima facie* obviousness.

For these reasons, Claims 25, 27 to 36 and 46 to 59 are non-obvious and Applicants solicit allowance of such claims.

Respectfully submitted,

  
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